

# MODEL AT2 • 3 HR. RATED

## MODEL AT2 250 • MODEL AT2 350

### LEAKAGE AND TEMPERATURE RATED COMBINATION FIRE/SMOKE DAMPER

### LEAKAGE CLASS II • DYNAMICALLY CLASSIFIED TEMPERATURE CLASS 250°F OR 350°F

UNDERWRITERS LABORATORIES INC.®

CLASSIFIED FIRE DAMPER  
FIRE RESISTANCE RATING 3 HR

ALSO AS TO LEAKAGE RESISTANCE CLASS II



IN ACCORDANCE WITH UL STANDARDS 555 & 555S

#### STANDARD MATERIALS AND CONSTRUCTION

- FRAME:** 5 1/2" x 7/8" x 16-GA galvanized steel hat channel.
- BLADES:** 16-GA Galvanized steel, 8" maximum width, parallel action.
- AXLES:** 1/2"-square, plated solid steel stub.
- BEARINGS:** Oil Impregnated Bronze.
- LINKAGE:** On-blade type, located within the airstream; galvanized steel angle interconnect, with plated steel brackets and pivots.
- STOPS:** 18-GA galvanized steel at head and sill.
- BLADE EDGE SEALS:** Silicone material.
- COMPRESSION SIDE JAMB SEALS:** Stainless steel.
- SLEEVE:** Minimum 20-GA galvanized steel by 20" long is standard. 18-GA for sizes over 84" wide.
- CAULKING:** Hardcast Irongrip 601, or UL-listed equivalent.
- FINISH:** Mill on galvanized steel.
- ACTUATOR:** ELECTRIC, with 165°F thermal disc; or PNEUMATIC, with 165°F fusible link and P.E.R.V. Factory-installed for Power-Open/Spring-Return (Fail Close) operation. See reverse side.

#### DIMENSIONAL DATA See note 1

##### RECTANGULAR DAMPERS

**Minimum Size:** 8"W x 8"H

Dampers can be furnished with a duct size minimum of 8"W x 6"H using a type B enclosure pan in a factory furnished sleeve. The overall frame is 8"W x 8"H.

<b>Maximum Size:</b>	<u>Vertical</u>	<u>Horizontal</u>
Single Panel:	36"W x 48"H	30"W x 48"H or 36"W x 30"H
Multi Panel:	108"W x 48"H	60"W x 48"H

##### ROUND AND OVAL DAMPERS

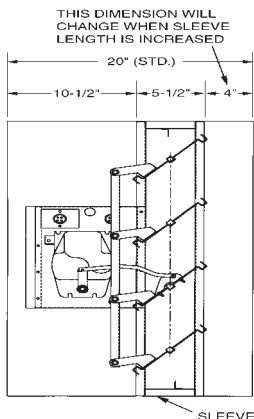
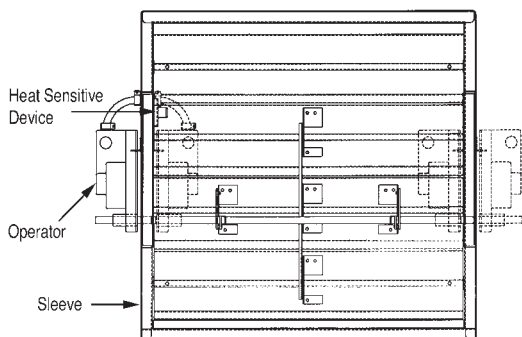
(Type C Housing, Duct Dimensions)

Frame Width = Duct Width + 2"  
Frame Height = Duct Height + 2"

<b>Minimum Size:</b>	Round:	4" Diameter
<b>Maximum Size:</b>	<u>Vertical</u>	<u>Horizontal</u>
	Single Panel	Single Panel
Round:	34" Diameter	28" Diameter
Oval:	34"W x 46"H	34"W x 28"H
	<u>Multi Panel</u>	<u>Multi Panel</u>
Oval:	106"W x 46"H	58"W x 46"H

#### AVAILABLE OPTIONS: (Must Be Specified)

1. Sleeve thicknesses heavier than the standard 20-GA and longer than the standard 20" length.
2. Type C Housing for round and oval ductwork.
3. 212°F thermal disc (electric models) or fusible link (pneumatic models).
4. "Sens-O-Therm" Thermally Reopenable Temperature Sensing System is available with 165°F (Standard) or 212°F settings. This system includes open and closed position indicator switches. It also includes a second thermal disc to re-close the damper when the rated degradation temperature is reached.
5. Dual position indication package. (See note 4)
6. Smoke detector (minimum 20" sleeve required, damper height must be 10" minimum).



#### NOTES:

1. Dampers will be fabricated 1/4" undersize (1/2" width undersizing when two panels wide).
2. Approved for vertical and horizontal installation.
3. Optional auxiliary blade position indication switches are rated at 11A, 1/3HP, 125VAC. These snap action switches are intended to make or break a circuit and will not provide variable or proportional resistance.

Wall Thickness	Recommended Sleeve Length
	Sleeve
4", 6"	20"
8"	22"
12"	26"

NOTE: The length of the sleeve should not extend over 6" beyond the wall, except on the actuator side, where the sleeve may extend to a maximum 16" beyond the wall.

PROJECT: \_\_\_\_\_  
 LOCATION: \_\_\_\_\_  
 ARCHITECT: \_\_\_\_\_  
 ENGINEER: \_\_\_\_\_  
 CONTRACTOR: \_\_\_\_\_  
 PO NUMBER: \_\_\_\_\_  
 DATE: \_\_\_\_\_

*Additional Information  
on reverse side*

# ARROW UNITED INDUSTRIES SUBMITTAL DATA

## ACTUATOR SELECTION

Underwriters Laboratories requires that all UL-555S rated dampers be accompanied with their matching UL-approved factory-mounted actuators. The factors for proper actuator selection are actuator type (electric or pneumatic), voltage requirement, temperature rating, and damper size. Arrow United will factory install actuators for all combination fire/smoke dampers.

### ELECTRIC

	Honeywell ML4115 (120 VAC) ML8115 (24 VAC)	Honeywell MS 4209 (120 VAC) MS 8209 (24 VAC)	Honeywell MS 4120 (120 VAC) MS 8120 (24 VAC)	Siemens GGD 221 (120 VAC) GGD 121 (24 VAC) GGD 321 (230 VAC)	Belimo FSNF120 (120 VAC) FSNF24 (24 VAC)
<b>Max Panel Size at 250°</b>	4 sq. ft.—Width or Height not to exceed 36"	36" x 36" or 42" x 24" (Sizes up to 24" x 24" rated up to 3000 FPM, 4 in. wg.)	36" x 48" or 42" x 36" (Sizes up to 36" x 36" rated up to 3000 FPM, 4 in. wg.)	36" x 48"	36" x 36" or 42" x 24"
<b>Max Panel Size at 350°</b>	24" x 24" (External mount only—Sens-O-Therm N/A)	42" x 24"	36" x 48"	Contact Factory	36" x 36"
<b>Min. size for Internal mount:</b>	12" x 12"	12" x 12"	12" x 20"	12" x 20"	12" x 20"

### PNEUMATIC

	Siemens 331-4830	Siemens 331-2906	Siemens 331-2996
<b>Max Panel Size at 250°</b>	24" x 24" (@ 25 PSI)	36" x 36" (@20 PSI)	36" x 48" (@ 22 PSI) (Sens-O-Therm N/A)
<b>Max Panel Size at 350°</b>	Contact Factory	24" x 24" (@25 PSI) (Sens-O-Therm N/A)	36" x 48" (@ 22 PSI) (Sens-O-Therm N/A)
<b>Min. size for Internal Mount:</b>	12" x 12"	12" x 20"	16" x 24"

### AMP DRAW

<b>ML 4115</b>	run .18 hold .11
<b>ML 8115</b>	run .70 hold .35
<b>MS 4209</b>	run .25 hold .13
<b>MS 8209</b>	run 1.0 hold .13
<b>MS 4120</b>	run .35 hold .15
<b>MS 8120</b>	run 1.8 hold .42
<b>GGD 121</b>	run 1.3 hold .10
<b>GGD 221</b>	run 6.25 hold .42
<b>GGD 321</b>	run .65 hold .04
<b>FSNF120</b>	run .23 hold .09
<b>FSNF24</b>	run .23 hold .09

NOTE: When the optional "Sens-O-Therm" Thermally Reopenable Temperature Sensing System is supplied, the pneumatic actuator's air supply is controlled by a factory-supplied 120-VAC (Standard) Electric/Pneumatic Valve. Optional valves are available for 120VDC, 24VAC, 24VDC or 12VDC. Contact customer service for pricing

### GENERAL NOTES

- Flow may be from either direction.
- Actuators will be mounted externally on the left side of the sleeve as viewed from the linkage side of the damper. Certain actuators may be mounted on the right side or internally, if specified on the order.
- Underwriters Laboratories Inc. classified for use in fire resistance ratings of 3 hours and longer, in accordance with UL Standard 555.
- Underwriters Laboratories Inc. classified leakage-rated (smoke) damper for use in smoke control systems designed for Leakage Class II, and Temperature Class 250°F or 350°F in accordance with UL Standard 555S.
- Installation must comply with the requirements of NFPA-90A & -92A. Actuators must be arranged to operate automatically, must fail-close upon loss of power, and must be controlled by a smoke detection system.

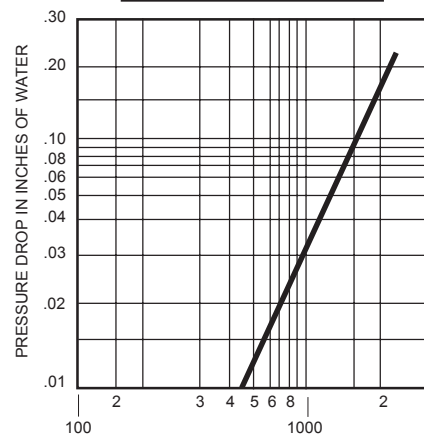
### PERFORMANCE

MAXIMUM  
DIFFERENTIAL  
PRESSURE: 4 in. wg  
Maximum Velocity:  
2000 fpm/3000fpm based on actuator

### LEAKAGE

Definition: UL 555S Class II:  
Leakage Not Greater Than:  
10 CFM per sq. ft. @ 1 in. wg  
20 CFM per sq. ft. @ 4 in. wg

### PRESSURE DROP



FACE VELOCITY IN FEET PER MINUTE  
TYPICAL PERFORMANCE CURVE  
TESTED PER AMCA STANDARD 500; FIGURE 5.3:  
SIZE TESTED — 36" x 48"  
Smaller sizes will have higher pressure drops.



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